Name: _____ TP: _____

HW#36: GRASP - Quadratics
Geometry – FORM A
Due Date: Thursday, Nov. 15th, 2012

Failure to show work on all problems or use complete sentences will result in a LaSalle.

★ ***For problem numbers 1 and 2, you must GRASP them on a separate piece of graph paper. This piece of paper should have problem 1 on the front and problem 2 on the back. Use your classwork to help guide you through the process.***

1) During a cliff dive competition, a diver begins a dive with his center of gravity 70 feet above the water. The initial vertical velocity of his dive is 8 feet per second. (not time) (time)

a. Write an equation that models the height h (in feet) of the divers center of gravity as a function of time (seconds):

$h(t) = -16t^2 + \_\_\_t + \_\_\_$
(time) (not time)

b. How long after the diver begins his dive does his center of gravity reach the water? set equal to zero.

c. How long does it take him to reach the maximum height of his dive? ① Find vertex $\frac{-b}{2a}$ ② sub in for 't'

d. How long does it take the diver to reach his maximum dive? solve for 't'

2) You throw a wad of used paper towards a wastebasket from a height of **1.3** feet above the floor with an initial vertical velocity of **3** feet per second. The flight of the paper wad can be modeled with the function **$h(t) = -16t^2 + 3t + 1.3$**, where *h* represents the height (in feet) of the paper wad *t* seconds after it was thrown.

a) What is the maximum height of the wad of paper? ① Find vertex ② sub in for 't'

b) After how many seconds does the wad of paper reach its maximum height? solve for 't'

c) At what time does the wad of paper hit the ground? ① set equal to zero ② solve

Mixed Review (Do not GRASP! Solve Mixed Review on this sheet.)

3) What is the quadratic equation with solutions x = -1 and x = 12?

① (x+1)(x-12)
② F.O.I.L or BOX

4) Find the solutions to the quadratic equation:

$2x^2 - 51 = 0$ * square roots

5) What is the sum of all values for x that satisfy the equation:

$x^2 + 10x + 25 = 0$

① Factor
② solve twice
③ Add solutions

6) Write the formula for the quadratic equation that has the following factors: F.O.I.L or BOX

(x-3)(2x+4)

PUSH IT TO THE LIMIT.